

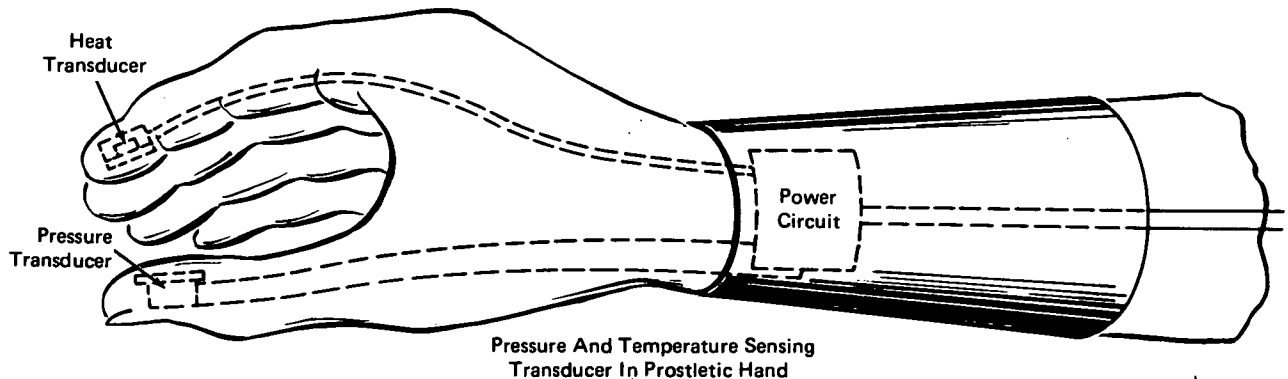
# NASA TECH BRIEF

## *Marshall Space Flight Center*



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### Limited Tactile Stimulus for Prosthetic Hands



Prosthetic hands, with their increasing sophistication, have markedly enhanced the capabilities of handicapped persons. A new advance in prosthetic design goes even further by enabling the wearer to "feel" such tactile stimuli as heat and pressure.

The device consists of a frame and a socket for mounting the prosthetic hand on the arm. The sensing elements are transducers placed within the fingers of the "hand" (see fig.). The pressure transducer is seated within the thumb and the heat transducer in the forefinger. A number of specific transducers can be used and need only be able to transmit the required intelligence signals representing changes in heat or pressure. The sensors are connected through a power circuit to a slave unit that is buckled around the end of the truncated appendage. The slave unit includes a pair of electrically energized solenoids and a resistance heating element both of which are in contact with the wearer's skin.

The solenoids have axially extendible armatures that "pinch" the skin with a force depending on the degree of energization. The temperature of the heating element responds to the temperature sensed by the finger transducer. In this manner the wearer can sense the pressure and temperature to which the hand is subjected.

#### Notes:

1. Although this system is shown for use in a hand, it may also be adapted for use in other prosthetic devices.
2. Requests for further information may be directed to:

Technology Utilization Officer  
Marshall Space Flight Center  
Code A&PS-TU  
Marshall Space Flight Center, Alabama 35812  
Reference: B73-10078

#### Patent status:

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning non-exclusive or exclusive license for its commercial development should be addressed to:

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Source: W. L. Scott of  
Rockwell International Corp.  
under contract to  
Marshall Space Flight Center  
(MFS-16570)

Category 05